

DaimlerChrysler AG

## Patent claims

- 5 1. A method for operating a four-stroke internal combustion engine, having the following features:
- fuel is injected directly into at least one combustion chamber of the internal combustion engine, the volume of which changes cyclically,
  - 10 - fresh gas is supplied through at least one intake valve and combustion exhaust gas is discharged through at least one exhaust valve,
  - at part-load, a lean base mix of air, fuel and retained exhaust gas is formed, and at full load a
  - 15 stoichiometric mix is formed,
  - compression ignition takes place at part-load and spark ignition takes place at full load,
- characterized in that within the part-load range in the event of a change in load state, the theoretical shift
- 20 in the combustion position is compensated by the shift in the phase position of intake and/or exhaust phase.
2. The method as claimed in claim 1, characterized in that within the part-load range in the event of a
- 25 change in load state, the combustion is shifted in the early direction by adjusting the exhaust phase in the early direction, with the exhaust valve being opened earlier.
- 30 3. The method as claimed in claim 1 or 2, characterized in that within the part-load range in the event of a change in load state, the combustion is shifted in the early direction by the intake phase being adjusted in the late direction, with the intake
- 35 valve being opened later.